

WHAT IS CLAIMED IS:

1. A powered assembly, comprising:

at least one object that can be moved between a first configuration and a second configuration, the object being selected from the group consisting of window coverings, awnings, skylight coverings, curtains, and screens;

at least one motor;

at least one actuator coupled to the motor and the object to move the object when the motor is energized, the motor turning a rotating member;

at least one magnet juxtaposed with the rotating member and magnetically coupled thereto; and

at least one piezoelectric element that transfers the force of the magnet to output signals when the rotating member rotates, the signals being useful in determining at least one of: a position, and a speed of rotation, of the motor, the magnet magnetically braking the rotating member from turning when the motor is deenergized.

2. The powered assembly of Claim 1, wherein the magnet is a first magnet, the piezoelectric element is a first piezoelectric element, and the assembly further comprises a second magnet and a second piezoelectric element interposed between the rotating member and second magnet and oriented in quadrature with the first piezoelectric element.

3. The powered assembly of Claim 1, wherein the motor is powered by at least one dc battery.
4. The powered assembly of Claim 1, wherein the object is selected from the group consisting of window coverings, awnings, skylight coverings, curtains, and screens.
5. The powered assembly of Claim 1, wherein the rotating member includes:
 - an elongated ferromagnetic shaft;
 - a rotor of the motor; and
 - a vibration damping member interconnecting the rotor and ferromagnetic shaft, the piezoelectric element being juxtaposed with the shaft.
6. The powered assembly of Claim 1, wherein the piezoelectric element outputs a variable signal as a function of angular position of the rotating member.
7. A drive assembly for a movable object including a rod, comprising:
 - an electrically-powered drive structure couplable to the rod to move the object when the drive structure is energized, the drive structure having a rotating component;
 - at least one braking magnet closely spaced from the rotating member; and

at least one piezoelectric element juxtaposed with the magnet and generating a signal as the rotating member moves past the magnet, the signal being representative at least of a position of the rotating member.

8. The assembly of Claim 7, wherein the drive structure is powered by at least one dc battery.

9. The assembly of Claim 8, wherein the object is selected from the group consisting of window coverings, awnings, skylight coverings, curtains, and screens.

10. The assembly of Claim 7, wherein the magnet is magnetically coupled to the rotating member sufficiently to stop the rotating member from rotating when the drive structure is deenergized.

11. The drive assembly of Claim 7, wherein the magnet is a first magnet, the piezoelectric element is a first piezoelectric element, and the assembly further comprises a second magnet and a second piezoelectric element interposed between the rotating member and second magnet and oriented in quadrature with the first piezoelectric element.

12. The assembly of Claim 7, wherein the rotating member includes:
an elongated ferromagnetic shaft;

a rotor of the motor; and

a vibration damping member interconnecting the rotor and ferromagnetic shaft.

13. The powered assembly of Claim 7, wherein the piezoelectric element outputs a variable signal as a function of angular position of the rotating member.

14. A method for operating an object that can be moved between a first configuration and a second configuration, the object being selected from the group consisting of window coverings, awnings, skylight coverings, curtains, and screens, the method comprising:

providing a drive structure;

coupling the drive structure to the object such that the object is moved when the drive structure is energized;

closely juxtaposing at least one magnet with the drive structure;

using the magnet to brake the drive structure when the drive structure is not energized; and

piezoelectrically generating signals when the drive structure rotates past the magnets to determine at least one of: a position of the drive structure, and a speed of the drive structure.

15. The method of Claim 14, comprising determining a position of the drive structure at least in part based on an amplitude of a signal from a piezoelectric element.

16. The method of Claim 14, comprising determining a speed of rotation of the drive structure at least in part based on a frequency of a signal from a piezoelectric element.

17. The method of Claim 14, comprising providing two piezoelectric elements outputting respective signals and using the signals to determine a direction of rotation of the drive structure.

18. The method of Claim 14, comprising attenuating motor vibrations transmitted to a piezoelectric element.

19. The method of Claim 14, comprising powering the object solely by means of at least one primary dc battery.